

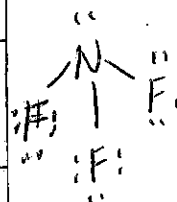
NAME

Key

Drawing Lewis Structures 1

Use the rules provided and a PENCIL to complete this table. Remember to record the valence electrons for each atom and the total electrons in the table. After you are satisfied with your structure, draw it in the table so you can refer back to it later.

Molecule	Valence Electrons per Atom	Total Electrons	Lewis Structure
H ₂ O	H:		
	O:		
CCl ₄	C:		
	Cl:		
H ₂	H:		
NH ₃	N:		
	H:		
OF ₂	O:		
	F:		
SiCl ₄	Si:		
	Cl:		
CH ₃ Cl	C:		
	H:		
	Cl:		
NF ₃	N:		
	F:		
H ₂ S	H:		
	S:		
CO ₂	C:		
	O:		



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Drawing Lewis Structures 2

Use the rules provided to complete this table. Remember to record the valence electrons for each atom and the total electrons in the table. Be sure to check to determine if multiple bonds or resonance structures are necessary.

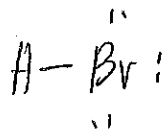
Molecule	Valence Electrons per Atom	Total Electrons	Lewis Structure
O ₂	O:		$\text{:}\ddot{\text{O}}=\ddot{\text{O}}\text{:}$
NI ₃	N: I		$\begin{array}{c} \text{:}\ddot{\text{I}}\text{:} \\ \\ \text{:}\ddot{\text{N}}\text{:} \\ \\ \text{:}\ddot{\text{I}}\text{:} \end{array}$
H ₃ C ₂ O ₂ ⁻	H: C: O:		$\left[\begin{array}{c} \text{H} \\ \\ \text{H}-\text{C}-\text{C}=\ddot{\text{O}}\text{:} \\ \quad \quad \\ \text{H} \quad \quad \ddot{\text{O}}\text{:} \end{array} \right]^{-}$
CH ₃ Cl	C: H: Cl:		$\begin{array}{c} \text{H} \\ \\ \text{H}-\text{C}-\text{Cl}\text{:} \\ \\ \text{H} \end{array}$
BrO ₃ ⁻	Br: O:		$\left[\begin{array}{c} \text{:}\ddot{\text{O}}\text{:} \\ \\ \text{:}\ddot{\text{Br}}\text{:} \\ \\ \text{:}\ddot{\text{O}}\text{:} \end{array} \right]^{-}$
O ₃	O:		$\begin{array}{c} \text{:}\ddot{\text{O}}\text{:} \\ \\ \text{:}\ddot{\text{O}}=\ddot{\text{O}}-\ddot{\text{O}}\text{:} \end{array}$
SO ₃	S: O:		$\begin{array}{c} \text{:}\ddot{\text{O}}\text{:} \\ \\ \text{:}\ddot{\text{S}}\text{:} \\ \\ \text{:}\ddot{\text{O}}\text{:} \end{array}$

NAME: _____

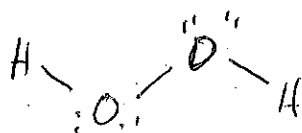
COVALENT BONDING

Show the structural formulas for molecules with the following:

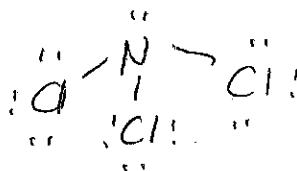
- 1) hydrogen and bromine



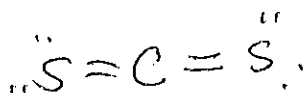
- 2) 2 hydrogen atoms and 2 oxygen atoms together in one molecule



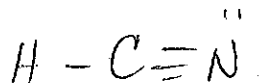
- 3) 1 nitrogen atom with enough chlorine atoms to make a complete molecule



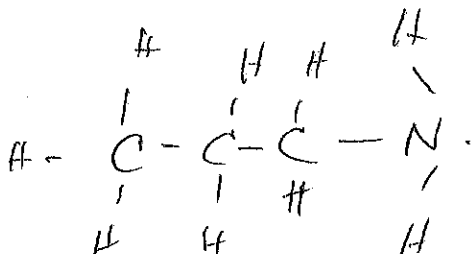
- 4) 2 sulfur atoms and 1 carbon atom



- 5) 1 carbon atom, 1 hydrogen atom and 1 nitrogen atom



- 6) 9 hydrogen atoms, 1 nitrogen atom and 3 carbon atoms in one molecule



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Model Kit Activity

You will soon use a molecular model kit to construct the molecules listed in the table. Before doing so, it is necessary you draw the Lewis structure for the compounds and fill in the first three columns of the table. Then, use the VSEPR model on p.457 to predict the shape of the molecule. Tomorrow, you will construct the molecule and use it to complete the final three columns of the table and the three questions on the back. Have your models checked before disassembling them!

Formula	Name	Lewis Structure	# atoms bonded to central atom	Lone electron pairs	VSEPR Shape	Polar/Nonpolar Bonds	Symmetric Molecule?	Polar Molecule?
H ₂ O	Water		2	2	Bent	2 Polar	No	yes
CHCl ₃	Trichloromethane		4	0	Tetrahedral	3 Polar 1 non-polar	No	yes
H ₂ O ₂	Hydrogen Peroxide		—	—	—	2 polar 1 non-polar	No	yes
NH ₃	Ammonia		3	1	Trigonal pyramidal	3 polar	No	yes
CH ₄	Methane		4	0	tetra-hedryl	4 nonpolar	yes	no
CCl ₄	Carbon Tetrachloride		4	0	tetra-hedryl	4 polar	yes	No
CH ₃ CH ₂ OH	Ethanol		—	—	—	6 non-polar 2 polar	No	Yes
CH ₃ CH ₂ CH ₂ CH ₃	Butane		—	—	—	13 non-polar	yes	no